RELATIONSHIP BETWEEN NUMERICAL SKILLS, INTEREST OF LEARNING, AND ATTENTION OF PARENTS WITH THE LEARNING OUTCOMES OF MATHEMATICS STUDENTS

Mailan 'Aziziyah[a], Sunaryo.[b]
Program Studi Pendidikan Matematika Universitas Ahmad Dahlan
Jalan Ring Road Selatan, Tamanan, Banguntapan, Bantul Yogyakarta
[a]mailan.aziziyah@gmail.com ,[b]sunaryo.bener@yahoo.co.id

ABSTRACT

The result of low mathematics learning is associated with many factors. Numerical ability, learning and attention from their parents are some of the factors that were related to the students' mathematics learning outcomes. Therefore, this study was conducted to determine whether there is a positive relationship between numerical ability, interest in learning, and attention parents with mathematics learning outcomes eighth-grade students of SMP Unggulan 'Aisyiyah Bantul regency in Odd Semester in Academic Year of 2016/2017. The population in this research is class VIII SMP Unggulan 'Aisyiyah Bantul regency in Odd Semester in Academic Year of 2016/2017, which consists of classes that Maryam and Hafsah totaling 41 students. Research carried out the study population. The data collection technique using questionnaires to obtain data on interest in learning, and attention from their parents, as well as test methods to obtain data of numerical ability and mathematics learning outcomes. Test instruments research: validity, different power, and reliability testing. Prerequisite test analysis covering the normality test, linearity, and independent testing. Analyzed using product-moment and multiple linear regression analysis. The results showed that there was a positive relationship between the numerical ability, interest in learning, and attention parents with mathematics learning outcomes eighth-grade students of SMP Unggulan 'Aisyiyah Bantul regency in Odd Semester in Academic Year of 2016/2017. This is shown by R = 0,5341 and R^2 = 0,2853 with $\hat{Y} = -81{,}5924 + 0{,}1007\,X_1 + 0{,}9037\,X_2 + 1{,}0058\,X_3$, with SR X_1= 0,7169 %, SR X_2= 49,2130% and SR X_3= 50,0699%, SE X_1= 0,2045%, SE X_2= 14,0403% and SE X_3= 14,2848%.

Keywords: Numerical Ability, Interest of Learning and Attention Parents, Mathematics Learning Outcomes.

INTRODUCTION

Education is a human effort to broaden the horizons of knowledge in shaping values, attitudes, and behavior. Education carried out seriously will result in an increase in one's intelligence. Education is done through learning in schools/madrasah. One of the subjects taught in schools/madrasah is mathematics learning. Therefore, mathematics learning is learning that shapes a student's personality in order to be able to apply the results of learning mathematics in the student's daily life.

According to Slameto (2010: 54-72), there are two factors that can influence learning success. The first factor is an internal factor, which is a factor that comes from within students including physical factors such as health, disability, and psychological factors including intelligence (ability to think), attention, interest in learning, talent, student learning, self-confidence, motivation, etc. The second factor is the external factor, which is a factor that comes from outside the student self including family factors such as the way parents educate, the atmosphere of the house and parents' attention. School factors such as teaching methods, school discipline, peers, etc.

Based on the results of interviews with mathematics teachers in class VIII in the Featured Junior High School 'Aisyiyah Bantul. Most students tend to lack good numerical ability in arithmetic operations. Therefore, the lack of ability possessed will affect students in solving math problems.

According to Agustin Leoni in Halima, Wirdha, and Supurwoko (2010: 14) Numerical ability, namely the ability associated with numbers and the ability to count. Whereas according to Agustina, Khairul, and Sarwadi (2015: 28) Numerical ability is the ability to operate a person count mathematics quickly and carefully.

Based on information obtained from a number of Featured Junior High School students ‘Aisyiyah Bantul. they said that they were less interested in mathematics because of several factors such as students' assumption that mathematics was difficult, had to calculate and memorize formulas, students rarely asked questions if there was material that they did not understand, and the lack of math notes and textbooks students had. According to the Ministry of National Education (2008: 9) Conceptual Definition: Interest is a desire composed through experience that encourages individuals to search for objects, activities, concepts, and skills for the purpose of getting attention or mastery. Operational definition: Interest is one's curiosity about the state of an object. Other information obtained from interviews with mathematics teachers of class VIII at Featured Junior High School is Aisyiyah Bantul. The teacher said that parents did not supervise children in learning, even did not want to know the difficulties experienced by children. A child's learning outcomes are very influential in the way parents educate their children. This was explained by Sutjipto Wirowidjojo in Slameto (2010: 61) The family is the first and foremost educational institution. A big healthy family means education in a small size, but it is decisive for education in a large size, namely the education of the nation, country and the world. The way parents educate their children will affect their learning. Based on information from mathematics teachers in class VIII at the Featured Junior High School ‘Aisyiyah Bantul on April 26, 2016, that student mathematics learning outcomes are still low. This is indicated by the Middle Semester Deuteronomy scores obtained by students of class VIII in Junior High School ‘Aisyiyah Bantul in the 2016/2017 Academic Year as follows:

Table 1. Middle Deuteronomy Test Grade VIII Odd Semester Junior High School ‘Aisyiyah Bantul Academic Year 2016/2017

Class	Hafsah	Maryam	Percentage
Total students	20	21	100%
Average	51,75	52,29	-
Lowest value	22	30	-
The highest score	84	94	
Completed (≥75)	5	2	17,07%
Not complete (<75)	15	19	82,93%

Based on Table 1, it can be seen that student mathematics learning outcomes are still low. Mathematics value is still below the Minimum Mastery Criteria (KKM) which is 75 and the percentage of completeness values in each class is still below 50%. From the description above, researchers are interested in conducting research on "The Relationship between Numerical Ability, Interest in Learning and Parents' Attention and Mathematical Learning Outcomes of Grade VIII Middle School Junior High School‘ Aisyiyah Bantul Odd Semester 2016/2017 Academic Year. "

The purpose of this study is to determine whether or not there are:

1. The presence or absence of a relationship between numerical ability and mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
2. The presence or absence of a relationship between interest in learning with mathematics learning outcomes for students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
3. The presence or absence of a relationship between parents' attention and the mathematics learning outcomes of students of class VIII in Featured Junior High School Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
4. The presence or absence of a relationship between numerical ability and interest in learning with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017.

5. The presence or absence of a relationship between numerical ability and parental attention with the mathematics learning outcomes of eighth-grade students in Featured Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017.
6. The presence or absence of a relationship between interest in learning and the attention of parents with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017.
7. The presence or absence of a relationship between numerical ability, interest in learning and parents' attention with the mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017.

METHODS

This research is classified as quantitative research. The place of research was conducted at the Junior High School ‘Aisyiyah Bantul. While the research was conducted in the odd semester of the 2016/2017 school year. The population in this study were all eighth-grade students of Odd Semester Junior High School ‘Aisyiyah Bantul Yogyakarta 2016/2017 Academic Year which consisted of two classes namely MARYAM, HAFSHAH with a total of 41 students.

In this study, there are two variables, namely the independent variable and the dependent variable. The independent variable (independent) consists of numerical ability (X1), learning interest (X2) and parents' attention (X3), while the dependent variable (dependent) is the result of learning mathematics (Y). Data collection techniques used questionnaires and test methods. In this study, the questionnaire method was used to obtain data on learning interest and parental attention. The test method is used to obtain data about numerical abilities and mathematics learning outcomes of eighth-grade students of SMP Aisyiyah Bantul High School. Questionnaire instrument test uses content validity test by reviewers and for numerical ability test questions and learning outcomes according to Arikunto, Suharsimi (2013) product-moment correlation technique, for questionnaire instrument reliability test according to Arikunto, Suharsimi (2012) uses the alpha Cronbach formula, while the reliability test instrument of numerical ability and learning outcomes in Arikunto, Suharsimi (2012) using the KR-20 formula. After the data is collected, the analysis prerequisite tests that must be met include normality test, independent test and linearity test. Data analysis using product-moment correlation analysis and multiple linear regression analysis.

RESULTS AND DISCUSSION

In this section further discussion of the results of research analyzed in correlation. This research found that:

1. Discussion of the results of the first hypothesis test

   The first hypothesis test result is that there is a positive relationship between numerical ability and student mathematics learning outcomes. In other words, the higher the numerical ability of students, the better the mathematics learning outcomes of students. In this study, a simple correlation coefficient (r) of 0.0240 was obtained. So that the determinant coefficient (r^2) of 0.00058 can be obtained which can be explained that 0.058% of learning outcomes are influenced by numerical ability while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which are explained by numerical ability (X_1) through linear lines $\hat{Y} = 58{,}5408 + 0.0284\,X_1$, with a regression direction coefficient of 0.0284. This means that every increase of one unit X1 results in 0.0284 increase in Y.
2. Discussion of the results of the second hypothesis test

   The second hypothesis test result is that there is a positive relationship between learning interest and mathematics learning outcomes. In other words, the higher the students' interest in learning, the higher their learning outcomes. In this study, a simple correlation coefficient (r) of 0.3999 was obtained. So the determinant coefficient (r^2) of 0.1599 can be obtained which can be explained that 15.99% of learning outcomes are influenced by learning interest while the rest is

influenced by other factors. There are variations in learning outcomes in mathematics (Y) which are explained by interest in learning (X_2) through linear lines $\hat{Y} = -13{,}6112 + 1{,}0295\,X_{2,}$ with a coefficient of regression direction of 1.0295. This means that every increase of one unit of X_2 results in a 1.0295 increase in Y.

3. Discussion of the results of the third hypothesis test

The third hypothesis test result is that there is a positive relationship between parents' attention and mathematics learning outcomes. In other words, if parents pay attention to children's learning, that is by meeting all their learning needs, then the child tends to be motivated to study hard so that the learning outcomes will be better. In this study, the correlation coefficient (r) of 0.4000 was obtained. So obtained (r^2) of 0.16 which can explain that 16% of learning outcomes are influenced by the attention of parents while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which are explained by parents' attention (X_3) through linear lines$\hat{Y} = -18{,}6738 + 1{,}1267\,X_3$ with a coefficient of regression direction of 1.1267. This means that each increase of one unit X_3 results in a 1.1267 increase in Y.

4. Discussion of the fourth hypothesis test results

The fourth hypothesis test result is there is a positive relationship between numerical ability and interest in learning with student mathematics learning outcomes. In other words, the higher the numerical ability and the better the student's interest in learning, the better the mathematics learning outcomes of the student. From the multiple correlation analysis, it is obtained the value of the multiple correlation coefficient (R) of 0.4026. In this study also obtained a coefficient of determination (R^2) of 0.1621 meaning 16.21% of learning outcomes are influenced by numerical ability and interest in learning while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) which can be explained by numerical ability (X1) and learning interest (X_2) through linear lines $\hat{Y} = -17{,}647 + 0.0552\,X_1 + 1{,}0363X_2$. This means an increase in one unit (X_1) results in a 0.0552 increase in Y, and an increase in one unit (X_2) results in a 1,0363 increase in Y. As for the relative contributions X_1 amounted to 0.6931% and X_2 amounted to 99.3069% and effective contributions X_1 amounted to 0.1123% and X_2 amounted to 16.1003%.

5. Discussion of the results of the fifth hypothesis test

The fifth hypothesis test result is that there is a positive relationship between numerical ability and parental attention with student mathematics learning outcomes. In other words, the better the numerical ability of students and the higher the attention given to parents, the better the results of student mathematics learning. From the multiple correlation analysis, the value of the multiple correlation coefficient (R) was 0.4062. In this study also obtained a coefficient of determination (R^2) of 0.1650 meaning 16.50% of learning outcomes are influenced by numerical ability and parental attention while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) that can be explained by numerical ability (X_1) and parents' attention (X_3) through linear lines$\hat{Y} = -25{,}709 + 0{,}0843\,X_1 + 1{,}1499\,X_3$. This means an increase in one unit (X_1) results in a 0.0842 increase in Y, and an increase in one unit (X_3) results in a 1,1499 increase in Y. While for relative contribution X_1 is 1,0373% and X_3 is 98.9626% and effective contribution is X_1 of 0.1711% and X_3 of 16.3313%.

6. Discussion of the results of the sixth hypothesis test

The sixth hypothesis test results are there is a positive relationship between learning interest and parental attention with student mathematics learning outcomes. In other words, the better the student's interest in learning and the higher the attention the parents are given, the better the student's mathematics learning outcomes. From the multiple correlation analysis, it is obtained the value of the multiple correlation coefficient (R) of 0.5274. In this study also obtained a coefficient of determination (R^2) of 0.2781 meaning 27.81% of learning outcomes are influenced by learning interest and parents' attention while the rest is influenced by other factors. There are variations in mathematics learning outcomes (Y) that can be explained by interest in learning (X_2)

and parents' attention (X_3) through linear lines $\hat{Y} = -72{,}6591 + 0{,}8950X_2 + 0{,}9796\,X_3$. This means an increase in one unit of X_2 results in a 0.8950 increase in Y and an increase in one unit X_3 results in a 0.9796 increase in Y. As for the relative contribution of X_2 by 49.9862% and X_3 by 50.0138% and effective contribution of X_2 by 13.9047 % and X_3 of 13.9124%.

7. Discussion of the results of the seventh hypothesis test

The seventh hypothesis test results are there is a positive relationship between numerical ability, interest in learning and parents' attention with student mathematics learning outcomes. In other words, the better the numerical ability of students, the higher the students 'interest in learning and the attention of their parents, the better the students' mathematics learning outcomes. From the multiple correlation analysis, the value of the multiple correlation coefficient R was 0.5341. This study also obtained a coefficient of determination R^2 of 0.2852 meaning 28.52% of learning outcomes are influenced by numerical ability, interest in learning and parents' attention while the rest is by other factors not examined in this study. Variations in mathematics learning outcomes Y can be explained by numerical ability X1, interest in learning X_2, and parents' attention through linear lines $\hat{Y} = -81{,}5924 + 0{,}1007\,X_1 + 0{,}9037\,X_2 + 1{,}0058X_3$. This means an increase in one unit (X_1) results in a 0.1007 increase in Y, an increase in one unit (X_2) results in a 0.9037 increase in Y, and an increase in one unit (X_3) results in 1,0058 increase in Y. As for the relative contribution of X_1 of 0, 7169%, X_2 of 49.2130% and X_3 of 50.0699% and effective contribution of X_1 of 0.2045%, X_2 of 14.0403% and X_3 of 14.2848%.

Based on research that has been carried out among the three variables that make the biggest contribution to mathematics learning outcomes is the attention of parents.

CONCLUSION

Based on the results of research and discussion as described in Chapter IV, the following research conclusions can be drawn:

1. There is a positive relationship between numerical ability and mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017
2. There is a positive relationship between interest in learning with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
3. There is a positive relationship between parents' attention with the mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
4. There is a positive relationship between numerical ability and interest in learning with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
5. There is a positive relationship between numerical ability and parents' attention with the mathematics learning outcomes of Grade VIII students in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
6. There is a positive relationship between interest in learning and the attention of parents with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester 2016/2017 Academic Year.
7. There is a positive relationship between numerical ability, interest in learning and the attention of parents with mathematics learning outcomes of students of class VIII in Junior High School ‘Aisyiyah Bantul Odd Semester Academic Year 2016/2017.

REFERENCES

Agustina, Khairul, dan Sarwadi. 2015. *Psikotes*. Yogyakarta: Pustaka Baru Press.

Agustin Leoni dalam Halima, Wirdha, dan Supurwoko. 2010. *Hubungan antara Kemampuan Numerik dengan Hasil Belajar Fisika Siswa SMP*. Tersediapadahttps://core.ac.uk/downlad/files/478/16506561.pdf. Diakses pada tanggal 22 Juli 2016

Arikunto, Suharsimi. 2013. *Prosedur Penelitian Suatu Pendekatan Praktik*.. Jakarta: Rineka Cipta.

_____. 2012. *Dasar-Dasar Evaluasi Pendidikan*. Jakarta: Bumi Aksara.

Departemen Pendidikan Nasional. 2008. *Pengembangan Perangkat Penilaian Afektif*.

Slameto.2010. *Belajar dan Faktor-Faktor yang Mempengaruhinya*. Jakarta:Rineka Cipta.